Notice of Allowability	Application No. 10/691,670	Applicant(s) INAGAKI, SHOJI	
	Examiner CUONG H. NGUYEN	Art Unit 3661	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *the amendment received on 12/06/06*.

2. ☒ The allowed claim(s) is/are *1-3,5-11, 13-18; they are renumbered as claims 1-14. Formal drawings are received on 10/24/03*.

3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☒ All b) ☐ Some* c) ☐ None of the:
      1. ☒ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
   (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date 9/30/04, ~~5/12/04~~, 11/07/03
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

CUONG H. NGUYEN
Primary Examiner
Art Unit: 3661

DETAILED ACTION

1. This Office Action is the answer to the amendment received on 2/17/2006.

Status of the claims

2. Claims 1-18 are pending. Claims 4, 12, and 17-18 are canceled on 2/17/06.

Drawings

3. Submitted formal drawings are acceptable.

Examiner's amendment:

4. An examiner's amendment to the record appears below. The authorization for this amendment was given in a telephone interview with Mr. Stephen Catlin (Reg. # 36,101) on 2/17/2006. Should the changes and additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

The pending claims are amended as followed:

A. Delete "." (at the end of claim 1); and replace with -- , --

B. Claim 1, right after line 10, insert:

■ -- wherein the number of the target vehicle state quantities that are calculated is equal to the number of 360^0 turns of the reference rotational position of the steering angle sensor within a rotatable angle range of the steering operator.--

C. Claim 4 is CANCELLED.

D. Delete "." (at the end of claim 1 – line 12); and replace with -- , --

E. Claim 5, right after line 12, insert:

■ -- wherein the number of the target vehicle state quantities that are calculated is equal to the number of 360^0 turns of the reference rotational position of the steering angle sensor within a rotatable angle range of the steering operator.--

F. Claim 12 is CANCELLED.

G. Delete "." (at the end of claim 14 – line 9); and replace with -- , --

H. Claim 14, right after line 9, insert:

■ -- wherein a target vehicle state quantity is determined for each 360^0 rotational of the steering operator within a rotatable angle range of the steering operator.--

I. Delete "." (at the end of claim 15 – line 11); and replace with -- , --

J. Claim 15, right after line 11, insert:

■ -- wherein a target vehicle state quantity is determined for each 360^0 rotational of the steering operator within a rotatable angle range of the steering operator.--

K. Claim 17 is CANCELLED.

L. Claim 18 is CANCELLED.

Allowable Subject Matter **& Reasons for Allowance**

5. Independent claims 1, and 5 are patentable over the closest references of Miki et al. (US Pat. 4,669,745) because they do not anticipate nor fairly and reasonably teach a vehicular motion control apparatus, besides other limitations, comprising:

- a controller that calculates target vehicle state quantities using estimated steering angles detected by the steering angle sensor, that determines a reference rotational position of the steering angle sensor corresponding to the minimum of differences between the actual vehicle state quantity and the target variable state quantities, and that then calculates a steering angle for controlling motion of a vehicle using a steering angle

sensor and the determined reference rotational position, wherein the number of the target vehicle state quantities that are calculated is equal to the number of 360^0 turns of the reference rotational position of the steering angle sensor within a rotatable angle range of the steering operator.

6. Independent claims 14, and 15 are patentable over the closest references of Miki et al. (US Pat. 4,669,745) because they do not anticipate nor fairly and reasonably teach a vehicular motion control method that utilizing the apparatus of above claims 1/5, wherein a target vehicle state quantity is determined for each 360^0 rotation of the steering operator within a rotatable angle range of the steering operator.

In summary, Miki et al. do not disclose a steering unit that has a number of complete/full revolution(s) of rotation from lock-to-lock, knowing the absolute angle of rotation of the wheel (such as 0^0) does not fully identify whether the vehicle is going straight, turning right with a number of complete 360^0 rotation of the steering wheel or turning left with complete 360^0 rotation(s) of the steering wheel for an accurate estimation of a reference rotational position of the steering angle..

7. Claims 2-3, 6-11, 13 are allowed because they are dependent on claims 1, and 5.

8. Claims 16, 18 are allowed because they are dependent on claim 15.

Conclusion

9. Claims 1-3, 5-11, 13-16 are patentable. Claims 5, 13, 15-16 are renumbered as claims 4, 5, 12, and 13.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to CUONG H. NGUYEN whose telephone number is 571-272-6759. The examiner can normally be reached on 9:30 am - 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, THOMAS G. BLACK can be reached on 571-272-6956. The Rightfax number for the organization where this application is assigned is 571-273-6956.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

CUONG H. NGUYEN
Primary Examiner
Art Unit 3661